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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/799,255

03/12/2004

Vladimir Gorelik

GK-EIS-1075 /
500593/2006

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26418

7590

12/06/2004

EXAMINER

HARVEY, DIONNE

REED SMITH, LLP

ATTN: PATENT RECORDS DEPARTMENT

599 LEXINGTON AVENUE, 29TH FLOOR

NEW YORK, NY 10022-7650

ART UNIT

PAPER NUMBER

2643

DATE MAILED: 12/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/799,255

Applicant(s)

GORELIK ET AL.

Examiner

Dionne N Harvey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 1-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 9-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/26/2004
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "one trapezoidal element" of claim 12; and "raised portion of the backplate is less than the height of the raised portions" of claim 13, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. Claim 16 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The recitation of "at least one ultrasonic transducer" in claim 16 is implicit by the recitation of "an ultrasonic transducer" in claim 9.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims **9-16** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Norris (US 6,044,160)**.

Regarding claim 9, shown in **figure 3 and 4**, Norris teaches an ultrasonic transducer comprising a diaphragm **12** and a corrugated backplate **11**.

Norris does not clearly teach that the corrugations **16** in the backplate **11** are caused by embossing. However, the Applicant has not disclosed that forming cavities in the backplate, specifically by embossing, is critical the invention. Since Norris recognizes a need in the art for forming concave cavities **16** in the backplate of the ultrasonic transducer, it would have been obvious for one of ordinary skill in the art at the time of the invention to form cavities in the backplate of Norris using any well known

technique, and without undue experimentation, for the purpose of yielding a more finely tuned resonant frequency from the transducer device (**see column 4, lines 41-44**).

Regarding claim 10, shown in **figure 4**, Norris teaches that the backplate has an *approximately* sine-shaped profile in cross section, as broadly claimed.

Regarding claim 11, shown in **figure 4**, Norris teaches that the spacing (**see the space in cavity 16 which is disposed between conductive surface 30 and diaphragm 12**) between the diaphragm **12** and the surface of the backplate **11** is substantially sine-shaped.

Regarding claim 12, shown in **figure 4**, Norris teaches that the backplate **11** has at least one trapezoidal element in cross section.

Regarding claim 13, shown in **figure 4**, Norris appears to teach that the embossed backplate has raised portions (**see those portions at either side of cavity 16**) such that an air gap between the diaphragm and the raised portions of the backplate (**see that area disposed between conductive layer-30 and film-12**) is less than the height of the raised portions.

Regarding claim 14, shown in **figure 4**, Norris teaches that the backplate has a plurality of webs (**see those portions of the backplate disposed on either side of air gap 15**) which have a height (**shown but not labeled**) and are spaced at a distance (**air gap 15 reads on the "spaced at a distance" limitation**) from one another.

Regarding claim 15, As stated in the rejection above, Norris teaches the construction of the ultrasonic transducer as set forth in claims 9 and 14 above, and therefore teaches **fringe effects** occurring at the edge of adjacent webs, two of which

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webs **11** are illustrated in **figure 4**. In **column 4, lines 46-49**, Norris teaches that the cavity depth, that is the shape of each web (11), is selected such that it is a function of the emitter displacement, reading on "the distance between two adjacent webs is selected in such a way that fringe effects occurring at the edge of the adjacent webs bridge the distance."

Regarding claim 16, Norris teaches at least one ultrasonic transducer.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Pompei (US 6,775,388) teaches an ultrasonic transducer.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dionne N Harvey whose telephone number is 703-305-1111. The examiner can normally be reached on 9-6:30 M-F and alternating Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz can be reached on 703-305-4708. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

D. Harvey



HUYEN LE
PRIMARY EXAMINER